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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/556,280	04/24/2000	Henry F. McInerney	L0532/7010	7997
7590	02/09/2005		EXAMINER	
Neil P Ferraro Wolf Greenfield & Sacks P C 600 Atlantic Avenue Boston, MA 02210			ROSENBERGER, RICHARD A	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/556,280	MCINERNEY ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Richard A Rosenberger	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 11/15/2004.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 12-23 and 86-124 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 12-23 and 86-124 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
    Paper No(s)/Mail Date .  
4)  Interview Summary (PTO-413)  
    Paper No(s)/Mail Date. \_\_\_\_ .  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_ .

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 12-23 and 86-124 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang (US 5,719,948) in view of Shaw (US 3,663,813), Falls (US 4,567,370) and Stenzel et al (US 4,146,792).

3. As independent claim 22, Liang shows an authentication device for authenticating a mark (:graphic images or characters of both; abstract, lines 4) on a substrate, the mark being of any desired pattern and including a light-sensitive compound that, when irradiated with light, emits or absorbs light at a first wavelength (“graphic images and/or characters [which] have been previously made with fluorescent substances that may be invisible under ordinary visible light, but are rendered detectable by the ultraviolet light.”, abstract. Lines 4-7). The device if Liang comprises a video mode comprising a video mode detector (40; “a photodiode array [or] a CCD camera” (column 6, lines 42-43), disclosed as producing a “conventional image detectable with visual-light illumination” (column 7, lines 59-61)) for detecting an image of at least a portion of the substrate known to include the mark; and a video display (110) for displaying the image. The Liang reference

also comprises a snapshot mode comprising a light for irradiating the substrate (“a source of UV light”, abstract, lines 11-12), a snapshot mode detector (40; “capable of detecting fluorescent light from tested articles” (column 6, lines 42-44)) for detecting light emission or absorption of the light-sensitive compound in the mark after the mark has been irradiated, the snapshot mode detector providing data representative of the detected light emission or absorption of the light-sensitive compound in the mark. There is a processor (microcomputer 100) cooperating with at least the snapshot mode detector (40),

The Liang reference does not teach that the “processor processes the data independent of the pattern of the mark, the processor comparing the data that is independent of the pattern of the mark to a standard and rendering an authentication signal based on the comparison”.

It is known in the art to use fluorescent marks on the object for authenticating articles. Falls, Shaw and Stenzel et al show this. In Falls there is a mark on an object containing two light-sensitive compounds, which are detected and “[s]hould one or both of these selected characteristic radiations 50 and 52 be absent or of different wavelengths, one or both of the respective displays 28 and 30 becomes actuated, indicating a ‘fail’ for the just measured sample 12” (column 4, lines 8-12). Similarly, Shaw teaches a coded mark which is comprises a plurality of different light sensitive (fluorescent) compounds which are detected and compared to a standard to determine whether the object is encoded based on the characteristics of the fluorescence of the marks. Stenzel et al teaches providing papers to be

authenticated fluorescent markers “at one or more points” that may comprise “a mixture of several substances producing fluorescence in a narrow band may advantageously be provided, and the mixture ratio may serve as an additional security.” (column 6, lines 24-27). In all three the processing is not based upon the shape of the mark; Shaw is explicit : “the shape of the symbol marking area is immaterial” (column 1, line 24) and “[i]t is not necessary that the symbol have a particular shape, such as a number or letter” (column 1, line 25-26). Shaw also discloses that the marks may have a particular shape: “. . . the coding component is also useful with . . . shaped symbols” (column 1, lines 27-28). Stenzel et al explicitly mentions the use of the ratio (quotient) of fluorescent peak wavelengths (column 8, lines 35-38), and teaches such a quotient has the advantages such as “dirt on the paper, variations in the brightness of the lamp” do not affect the measuring accuracy (column 8, lines 38-42).

It would have been obvious to included this known coding method of product authentication with the system of Liang by examining the emission spectrum of the marks in the manner taught by Falls, Shaw and Stenzel et al. This inclusion is not only known in the art, but is compatible with the marks and detection system taught by Liang. Liang teaches the marks may comprise a plurality of fluorescent materials (“[t]he process can also include printing fluorescent graphic images or characters with a multiplicity of fluorescent substances having distinct fluorescent wavelengths”; column 4, lines 43-46) as do the coded marks of Falls and Shaw, and teaches, as do Falls, Shaw, and Stenzel et al, separate detection of the different

wavelengths (“[t]he system may also . . . optical filters to select predetermined wavelengths of fluorescent light”; column 4, lines 22-24 - note “filters” and “wavelengths” are both plural). It would have been obvious to include in the system of Liang because it is would provide an additional level of security in a known manner for its known purpose by adding an additional test of authenticity, the coded fluorescence, in a manner already largely provided for by the system of Liang and, as shown by the other references, otherwise known in the art for the purpose of authentication.

4. Similarly for independent claim 90. As set forth above Liang teaches a fluorescent mark, which is a mark “including at least one light-sensitive compound that, when irradiated with light, emits or absorbs light at a first wavelength and at a second wavelength” (“[t]he process can also include printing fluorescent graphic images or characters with a multiplicity of fluorescent substances having distinct fluorescent wavelengths”; column 4, lines 43-46). As set forth above, Liang shows the claimed video mode and the claimed snapshot mode, and a processor. As set forth above, based on the teachings of Falls, Shaw, and Stenzel et al, it would have been obvious to examine the spectrum of the fluorescence of the marks provided by Liang. Stenzel et al teaches a known manner of using such fluorescent marks with a plurality of emission wavelengths for authentication is to form a ratio of the emission intensities at the two wavelengths (column 6, lines 24-27: “For rendering the forgery still more difficult, a mixture of several substances producing

fluorescence in a narrow band may advantageously be provided, and the mixture ratio may serve as an additional security”; column 8, lines 35-38: “FIG. 5 shows a simple circuit with which ... the quotient between the photocurrents of two photocells is compared to definite maximum and minimum values and used to establish the authenticity”). It would have obvious to use this manner of authenticating the fluorescent emission because, as taught Stenzel et al, this technique “has the advantage of affording increased safety because dirt on the paper, [and] variations in the brightness of the lamp ... do not affect the measuring accuracy” (column 8, lines 38-42).

5. Similar to claim 12 above for independent claim 108. As set forth above, Liang teaches a system of authenticating a fluorescent mark with both the claimed video and snapshot modes. As set forth above, based on the teachings of Falls, Shaw, and Stenzel et al, it would have been obvious to examine the spectrum of the fluorescence of the marks provided by Liang. Note that Falls specifically disclose the use of a material that fluoresces in the infrared range (column 3, lines 49-51).

Liang teaches using marks that are invisible under normal lighting conditions: “the graphic images and/or characters have been previously made with fluorescent substances that may be invisible under ordinary visible light, but are rendered detectable [ “detectable” includes being detectable by the detection system] by the ultraviolet light” (column 4, lines 11-14). Liang notes that “[i]t is known that documents may be authenticated by marking the documents with substances such

as inks or dyes that appear invisible or relatively unnoticeable to the naked eye in ordinary visible illumination" (column 2, line 27-30), and notes that it is known to use "substances which fluoresce in the infrared portion of the electromagnetic spectrum" (column 2, lines 46-48). Shaw teaches infrared emission is possible (column 2, line 67). Stenzel et al teaches that the fluorescence may be in the infrared (abstract, line 3; column 1, line 59). Falls specifically disclose the use of a material that fluoresces in the infrared range (column 3, lines 49-51). It would have been obvious to use such infrared emitting fluorescent materials, which are invisible as the human eye cannot see the infrared emissions because, as Stenzel et al teaches, this use of invisible fluorescence can add to the security by making the marks unable to be recognized readily" (column 1, lines 52-55). As the detector in the snapshot mode is chosen to detect the emissions ("the detector may be capable of detecting both fluorescent images and normal visible images" (column 4, lines 24-26)) and the detected image is displayed ("indicator 110 may display a processed image and/or a raw, unprocessed image of article 25 or indicia 26" (column 10, lines 19-26), the use of the fluorescent images that fluoresce in the infrared will be, as claimed, "invisible to the naked eye and the mark is viewable only on the snapshot display".

6. Stenzel et al claims "an evaluation unit connected to said photoelectric transducers and operable for comparing the emission values detected by said photoelectric receiving unit with predetermined desired values for checking the

authenticity of papers" (claims 1; column 9, line 68 through column 10, line 5). It is at least obvious to have this checking done by the computer because this automates the procedure and reduces human error. For such computerized checking, the data, both the measured and the reference values against which the measured values are to be compared, must be stored in the computer (claims 13, 91, 109) in a format which the computer can read (claims 14, 92, 110); the Liang reference discusses storing the images obtained in digital form in computer memory (column 12, lines 44-49). If a permanent record is desired of the test, it would have been obvious to create one using film or the like to do so (claims 16, 93, 11). Time and date stamping is a common practice, well known in the art, and would have been obvious in order to maintain more complete records of the authentication (claims 16, 94, 112).

The Liang reference teaches the light may be a strobe lamp (column 5, line 39), which is a type of flash (claims 17, 95, 113). The Liang reference teaches that "[f]or some applications it is desirable to insert other optical filters 50 (not shown) into illumination portions 15 of optical path between sources 10 and/or 20 and beam splitter 30, to select portions of the UV and/or visible/IR spectra with which to illuminate article 25" (column 5, lines 63 through column 6, line 1) (claims 18, 96, 114). Selecting the filter to provide the wavelength appropriate for the particular mark, and arranging the filter to be changed to accommodate different types of marks with different fluorescent materials rather than having a different device for each possible type of mark, would have been obvious (claims 19, 97, 115).

Touch screens are known manners of entering data and commands into computers and computer controlled systems and it would have been obvious to use this known technique for its known purpose (claims 20, 98, 116). The particular manner in which the two images are displayed, both at the same time on a split screen, alternately, in color, etc., is a matter of convenience; having both images on the screen at the same time, in a split screen format, would have been obvious because it would expedite the ability of the user to compare the two images in the manner taught by Liang (claims 21, 99, 117). When the snapshot mode is displaying the detected image of a mark that fluoresces in an invisible range, some color must be chosen to display the mark on the screen (claims 22, 100, 117). Making the images available in alternative, as well as, or instead of, the simultaneous view is another known manner of presenting images on a computer display, and would have been obvious (claims 23, 101, 118).

The camera of Liang detects the emitted light, and does so through a single optical path (claims 86, 102, 120). Making the instrument have working distances convenient to the particular application at hand would have been obvious (claims 87, 103, 121).

As discussed above in relation to claim 90, it would have been obvious to use the known technique of using marks with a plurality of emission wavelengths (claims 104, 105) and forming the ratio of the intensities of the wavelengths (claims 88, 123).

As discussed above in relation to claim 108, it would have been obvious to use a mark that fluoresces in an invisible range, such as in the IR range (claim 124), and thus is visible only in the snapshot display (claims 89, 107).

As set forth above in relation to claim 12, the fluorescent emission data is independent of the pattern of the mark, and the mark may be made of any desired pattern (claim 106).

7. The remarks filed 15 November 2004 have been considered, but have not been found to be persuasive. The remarks appear to be trying to suggest that the statement of the rejection somehow lacks motivation for the combination (for example, remarks, page 13, lines 16-19: "It is respectfully submitted that regarding this statement, the Office Action does not state *why* one would have been motivated to make the modification." [emphasis in the original]) even though the remarks themselves point out where in the rejection the statement of motivation is made (remarks, page 13, lines 20-27 : "The Office Action further concludes [i]t would have been obvious to include in the system of Liang because it is {sic} would provide an additional level of security by adding an additional test of authenticity, the coded fluorescence, in a manner already largely provided for by the system of Liang and, as shown by the other references, otherwise known in the art." Thus, in an attempt to answer the question *why* one of skill would have been motivated to modify Liang with the teachings of the other cited references, the Office Action states that an additional level of security would be provided by adding an additional test of

authenticity." [emphasis in the original]). The remarks correctly point out that the modification must be "based on the prior art or on knowledge of one of skill" (remarks, sentence bridging pages 13 and 14). Those in the art, working in the art area of providing security for documents by various marking and coding means, such as in all four references, will have the knowledge that additional security is a benefit; none of the references cited could have been invented absent the knowledge of those in the art the this type of security is beneficial. The suggestion of the remarks that those in the document security and anti-counterfeiting measure arts would be unaware that security and anti-counterfeiting measures are beneficial in their art, and that increased security is something in their art to be sought, is clearly without merit.

The remarks suggest that making the marks viewable only in the snapshot mode would somehow "frustrate the purpose of Liang" (remarks, page 17, lines 23-24). This argument ignores the broader teaching of Liang, in which the marks are detected by a camera and displayed on a screen, and that this display on the screen will make the marks visible on the screen, thus providing "human readability" even of marks that fluoresce in the infrared. Thus there it is not correct that the use of invisible fluorescence will "frustrate" any purpose of the Liang reference.

**8. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory

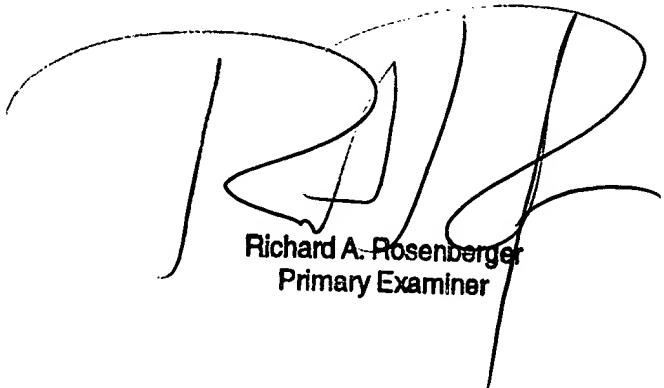
action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberger whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberger  
4 February 2005



Richard A. Rosenberger  
Primary Examiner